Product Name :

Solar Smart Grid Professional

Product Code :

SLE/PHY/222

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Description :

Understanding the complex interactions between renewable energies, energy stores and consumers in a smart grid is an important objective in vocational and technical education.
Solar-SmartGrid Professional is the ideal basic training system to reach this goal.
The experiment components for renewable energies such as wind and photovoltaics as well as energy stores such as lithium-iron-phosphate batteries or fuel cells allow a large variety of fundamental experiments besides the smart grid experiments.
With setting-up smart grids on a laboratory scale and its measurement and control students will learn the electro-technical challenges of mains operations very demonstratively.
Pre-set or user-created scenarios let the students gradually develop their knowledge with their own experiments.
The influence of renewable energies on grid stability is one major issue of the product.
The students at first experience the problem within an experiment to develop approaches for increasing grid stability on their own.
At the end they will verify them in practical experiments.
Even such complex concepts as demand-side-management or conductor rope monitoring can be addressed in experiments.
The basis for most of the experiments is the innovative Solar-Smartmeter allowing measurement and control of the energy fluxes in the experiments.

Smart Grid Experiments :
Daily power fluctuations of a photovoltaic (PV) power plant
Daily power fluctuations of a wind power plant
Energy supply of a building by conventional power plants
Energy supply of a building by conventional and PV power plants
Energy supply of a building by conventional and PV power plants with storage
Grid stability with PV power plants
Grid stability with PV power plants depending on consumer load
Grid stability with PV power plants depending on wire length
Grid stability with PV power plants and smart transformer stations
Grid stability with PV power plants and storages
Grid integration of E-Mobility
Voltage behavior and grid stability in a radial distribution system
Conductor rope management

Technical Specifications :
Components :
2x Solar-base unit Professional
2x Smart Meter
1x Solar-Wind turbine module Pro
1x Solar module 5.22 V, 380 mA
1x Wind machine
1x Motor module Pro
1x Base for solar panel
2x Power Module
1x Sola
2x Light
1x MPP
2x Grid